

# A Rare and Unusual Cause of Recurrent Hemoptysis: Alive Intratracheal Leech Infestation

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Received: 08 Dec. 2020; Accepted: 21 Jun. 2021

**Abstract-** Hemoptysis is defined as blood expectoration from below the vocal cords. Foreign bodies inhaled or consumed can be the cause of hemoptysis. Among alive foreign objects, leech infestation happens via drinking infested bodies of water. Leech infestation in the airway might be the cause of serious complications naming dysphonia, stridor, hemoptysis, choking, respiratory distress, and foreign body sensation. Although intratracheal leech infestation has been rarely reported, in the current case, a 79-year farmer presented recurrent non massive hemoptysis. Via fiberoptic bronchoscopy, a live leech was found in the trachea of the patient and with the use of lidocaine the leech was removed. In order to avoid such incidences, governments play an important role in building and repairing infrastructures regarding sanitary water and meanwhile educating and informing their population about sanitary water consumption.

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*Acta Med Iran* 2021;59(7):454-456.

**Keywords:** Hemoptysis; Intratracheal; Leech

## Introduction

Hemoptysis is defined as blood expectoration from the lower respiratory tract, in other words below the vocal cords. Inhaled foreign bodies may cause hemoptysis. These inhaled foreign objects may be animate or inanimate. Live foreign bodies maybe fish, leeches, and roundworms. Among animate foreign bodies, leeches are rare since they might localize in the nose, pharynx, supraglottis, trachea, and esophagus, or rarely in the larynx (1).

Leech (subclass Hirudinea), a hemorrhagic parasite, described and known as a small sucker, contains a mouth at the anterior end of its body and a large sucker at its posterior end. All leeches possess a 34-segment body. The length of the body ranges up to about 20 cm (8 inches) or even longer when the animal stretches in length. While leeches are primarily found in fresh water and on land, they can also be found in seawater. Some species of leeches are predators of other animals, some

eat organic debris, and others are parasitic. (2) Aspiration of the animate foreign object in animals and humans causing leech infestation, happens via drinking infested water taken from ponds, lakes, quiet streams, pools, and springs. Leech infestation in the airway can cause serious complications such as dysphonia, stridor, hemoptysis, choking, respiratory distress, foreign body sensation, cough, dyspnea, cyanosis, and anemia (3-5). Although intratracheal leech infestation is rare, in the current case, a 79-year-old male farmer presented recurrent non massive hemoptysis.

## Case Report

A 79-year-old male farmer who came from a village in Hamadan, west of Iran, was referred to the Pulmonary ward at Hamadan Beheshti Teaching Hospital (HBTH) on November 8<sup>th</sup>, 2019, with recurrent hemoptysis. Based on his habitant in a rural village, Aliabad-e Damagh, he had used unfiltered water originating from a

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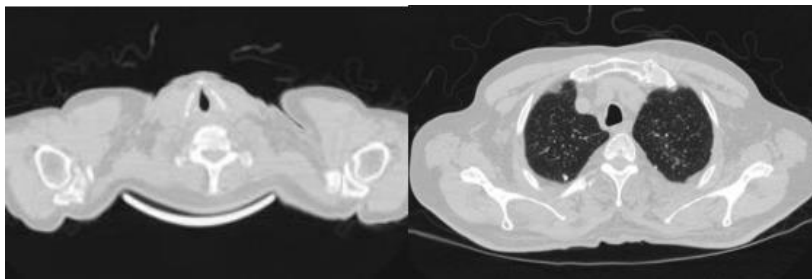
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spring. No background of any disorder was seen in the case. A week before hospital admittance and as sudden as water consumption from the spring, he experienced sudden onset cough, dyspnea, foreign body sensation in his throat, and dysphonia. Two days later, he was referred from a medical center in his village to Malayer's Gharazi Hospital and was hospitalized. Upon his admittance, except bloody mouth secretion no sign of

trauma, foreign body ingestion, or drug intake was reported, in addition to the fact that he was a nonsmoker. The results of his routine hematological, biochemical, and coagulation tests were in the normal range. His chest X-ray and computed tomography scan (CT) revealed diffused centrilobular micronodules in the lung parenchyma. However, no soft tissue shadows were observed in the upper trachea (Figure1).



**Figure 1.** Computed tomography showing diffused centrilobular micronodules

After five days of hospitalization in Gharazi Hospital and continuous hemoptysis with unknown etiology, he was referred to HBTH for further evaluation. In HBTH, his chief complaints included recurrent hemoptysis and intermittent hoarseness. Except for blood straining the tongue, palate, and oropharyngeal mucosa, his physical examinations were unremarkable. Regarding the fact that the result of the patient's previous chest CT scan was not significant, except for the diffused centrilobular micronodules, no further chest CT was ordered. Routine hematological and biochemical tests were repeated and urine analysis was also conducted which the results were all normal.

Under local anesthesia via spraying 10% lidocaine on the patient's oropharyngeal mucosa, flexible bronchoscopy was performed through the patient's mouth based on the anterior approach. A moving blackish-green striped wormlike foreign body was observed exactly below the vocal cords in the proximal part of the trachea. The moving object was identified as an alive leech. Its large sucker head was attached to the tracheal mucosa while its body and other head sometimes moved between the vocal cords (Figure 2). When its head entered the trachea and lengthened itself, it had a length of approximately 8cm to its fullest. Meanwhile, on the site of its sucker head attachment, active bleeding towards the carina was seen.

For detaching the leech, it was decided to pour a solution of 2% lidocaine solution (6) on its sucker head and body. Finally, after few minutes and with applying foreign body forceps, the leech was carefully and gently

removed from the trachea. Shortly after removing the leech, no active bleeding was observed on the site of attachment. The alive and extracted leech from the patient was blackish-green in color with stripes and having a smaller interior and a larger posterior head (Figure 3, Gif 1). After overnight surveillance, without receiving any drug prescription and discomfort, the patient was discharged from the hospital.



**Figure 2.** Position of the leech inside the patient's trachea



**Figure 3.** The 8 cm alive leech removed from the patient

**Gif 1.** The alive leech inside the patient's trachea

## Discussion

Leeches are hermaphroditic parasites that live on occasional bloodsucking and they normally live in bodies of water such as springs, streams, ponds and rivers, and also moist areas. They strongly attach by a sucker tail to their host mucosa and bite with their another sucker head (5) and can secrete blood nearly 10 times larger than their body weight from their host after clinging to and piercing the host mucosa, which is a painless process due to the anesthetics released from the leech's saliva containing Hirudin (complex protein) (7). It is worth mentioning that leeches enter the body via consuming contaminated, infected, and unfiltered water or via a person's natural orifices while swimming, playing, bathing, or spending time in bodies of water contaminated with leech, which are mostly reported in undeveloped countries (3,8,9). In the current case report and in approach to non massive recurrent hemoptysis with normal medical imaging (CT and chest X-ray), fibrotic bronchoscopy was performed under local anesthesia by spraying 10% lidocaine on the patient's mucosa due to the fact that lidocaine causes relaxation of the leech's sucker head (10). After the confirmation of the etiology of hemoptysis in the current patient and due to the unavailability of thoracic surgeon and limitations in access to other medical treatments for removing the leech, eventually, it was decided to paralyze the leech and detach it from its attachment site using 2% lidocaine solution (6). In addition, the worries regarding bronchospasms after irrigation of hypertonic sodium chloride solution, the only available option was irrigation of lidocaine solution on the leech itself for smooth removal (11).

In conclusion, although rarely seen, when encountering a patient presenting unexplained sudden onset recurrent hemoptysis, cough, hoarseness, and a foreign body sensation in the throat in addition to having a history of drinking water from ponds, springs, streams, or unfiltered water, leech infestation should be considered in differential diagnosis. Based on such possibilities, fibrotic bronchoscopy under local anesthesia and instilling lidocaine solution on the leech

for ease in its detachment may be a useful and effective approach in lower respiratory tract leech removal. This approach can avoid transferring the patient to the operating room for performing rigid bronchoscopy under general anesthesia. The basic solution to prevent such incidences is that the responsible health systems of developing countries should play a significant role in educating its population about and providing them sanitary drinking water.

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